Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law

Phosphorus Mixing Zone

When DEQ considers authorizing a mixing zone that exceeds 25% of the volume of the receiving water, a mixing zone study may be performed to learn more about the effluent plume. In this case, Sandpoint requested an annual mixing zone of 60% for phosphorus which prompted a mixing zone study using the Cormix model. The outcome of the study, using the proposed 5mgd design flow, indicated that during the low flow timeframe, conditions would exist that are contrary to the WQS mixing zone rules (IDAPA 58.01.02.060). Briefly these conditions are: during low flow the effluent plume hugs up to a mile of shoreline; the plume encompasses greater than 25% the width of the river; and the outfall is located in an area of poorly mixed slack water. Due to the scarcity of phosphorus effluent monitoring data and comments received during the first public comment period, an additional study was performed using a CE-QUAL-W2 model to examine downstream effects of the proposed phosphorus effluent limits. Comments also prompted an additional Cormix model run to examine the mixing zone for toxic pollutants which resulted in the revision of proposed effluent limits for mercury and the addition of limits for ammonia and chlorine. Results of these modeling efforts can be requested from DEQ.

To address phosphorus mixing zone issues Sandpoint requested compliance schedule options to allow for: (1a) improved mixing with their current level of treatment, (1b) improved treatment without improved mixing; in combination with either an existing plant upgrade, or a new regional plant to be constructed with a higher level of treatment that may or may not accept Kootenai Ponderay Sewer District wastewater.

Compliance Schedules

This certification includes compliance schedule options which provide the permittee with their desired amount of choices while specifying a reasonable amount of time to achieve the final effluent limits and/or compliance with mixing zone rules. At the same time, the schedules ensure that compliance with the final effluent limits and mixing zone rules are accomplished as soon as possible.

Requirements for All Phosphorus Compliance Schedule Options

1. The permittee must comply with all effluent limitations and monitoring requirements in Part I.B., I.C. and I.D. beginning on the effective date of the permit, except those for which a compliance schedule is specified in Part I.C of the final permit.

2. The permittee must achieve compliance with the applicable final effluent limitations as set forth in Part I.B. (Table 1) of the permit and the final mixing zone allowance and

applicable mixing zone improvements or improved treatment requirements, not later than:

a. Five (5) years after the effective date of the final permit for Option 1a: Improve Mixing and Maintain Current Level of Treatment; or Option 1b: Improve Treatment Without Improving Mixing; or
b. Ten (10) years after the effective date of the final permit for Option 2: Regionalization.

3. While the schedules of compliance specified in Part I.C are in effect, the permittee must complete interim requirements and meet interim effluent limits and monitoring requirements as specified in Parts I.C and I.D of the permit.

4. By one (1) year after the effective date of the final permit, the permittee must demonstrate to EPA and DEQ that funding for a new facilities plan has been secured.

5. By two (2) years after the effective date of the final permit, the permittee must notify EPA and DEQ of their decision of whether to regionalize wastewater treatment in the areas currently served by the City of Sandpoint WWTP and the Kootenai-Ponderay Sewer District WWTP, resulting in a single point of discharge to the Pend Oreille River. The decision to regionalize shall be evidenced by a firm public commitment satisfactory to the EPA and IDEQ.

    a. If the decision is to not regionalize or the regional plant will not meet a June-September 25% phosphorus mixing zone and continue to discharge from the existing outfall, Compliance Schedule Option 1a of this certification must be initiated and completed according to the Option 1a schedule.

    b. If the decision is to not regionalize and to upgrade the current plant to meet a June – September 25% phosphorus mixing zone using the existing outfall then Compliance Schedule Option 1b of this certification must be initiated and completed according to the Option 1b schedule.

    c. If the decision is to regionalize and meet a June – September 25% mixing zone, the permittee must comply with the Option 2 Compliance Schedule.

Compliance Schedule Options

Option 1a: Improve Mixing and Maintain Current Level of Treatment

It may be possible to improve the mixing zone situation without reducing the amount of phosphorus discharged by modifying or relocating the outfall. Option 1a allows the permittee time to develop an outfall scenario that meets WQS.

Interim Requirements for Option 1a Compliance Schedule

1. By three (3) years after the effective date of the final permit, the permittee must provide for DEQ approval, a preliminary engineering report (PER) that examines how to improve mixing and meet WQS by modifying or relocating the outfall pipe. This report must include a modeling study using the Cormix model of the phosphorus plume that demonstrates that proposed improvements will meet WQS. Baseline data used in DEQ's initial study shall be utilized to achieve comparable results. An alternative to modeling is to conduct a DEQ reviewed and approved dye study (or equivalent) at the new discharge location. The Cormix or dye study shall include analyses of both low and high flow plumes. This information shall be presented as images superimposed over an aerial photo of the river. The report shall include the proposed orientation of the pipe, specific location (if relocated) and materials, costs, and a schedule for completion of the work.

2. By four (4) years after the effective date of the final permit, final plans and specifications for the modifications proposed in the PER shall be submitted to DEQ for approval. In addition, all permits, easements or other approvals necessary to complete the work shall be obtained.

3. By five (5) years after the effective date of the final permit, the permittee must have completed the outfall modifications/relocation as approved by DEQ and meet WQS.

The interim and final phosphorus mixing zone for Option 1a compliance schedule shall be 47% from June 1st through September 30th and 60% from October 1st through May 31st. By the end of this 5 year compliance schedule the permittee shall have a discharge consistent with the mixing zone rules of the WQS.

Option 1b: Improve Treatment Without Improving Mixing

1. By three (3) years after the effective date of the final permit, the permittee must provide for DEQ approval, a preliminary engineering report (PER) that examines how to improve effluent quality and meet effluent limits associated with a 25% phosphorus mixing zone. This report must include details on how the phosphorus reduction will be achieved and demonstrates that proposed improvements will meet final effluent limits. The report shall include materials, costs, and a schedule for completion of the work.

2. By four (4) years after the effective date of the final permit, final plans and specifications for the modifications proposed in the PER shall be submitted to DEQ for approval.

3. By five (5) years after the effective date of the final permit, the permittee must have completed the plant upgrade and achieved compliance with final effluent limits and WQS as shown in Table 3.

The interim phosphorus mixing zone and associated effluent limits during the Option 1b compliance schedule shall be 47% from June 1st through September 30th and 60% from October 1st through May 31st (Table 2). By the end of this 5 year compliance schedule the permittee shall

meet final effluent limits associated with a June – September 25% mixing zone as shown in Table 3.

Table 2. Interim Limits and Mixing Zone Compliance for Option 1b				
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Percent Mixing Zone
Phosphorus Load (June-September)	lb/day	61	79	47% of the 30Q10 flow (6,640 cfs) without outfall modification/relocation
Phosphorus Load (October-May)	lb/day	96	125	60% of the 30Q10 flow (8,260 cfs) without outfall modification/relocation

Table 3. Final Limits and Mixing Zone Compliance for Option 1b				
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Percent Mixing Zone
Phosphorus Load (June-September)	lb/day	33	42	25% of the 30Q10 flow (6,640 cfs)
Phosphorus Load (October-May)	lb/day	96	125	60% of the 30Q10 flow (8,260 cfs)

Compliance Schedule Option 2: Regionalization

Sandpoint WWTP and Kootenai Ponderay Sewer District have requested a regionalization option be added to both their renewed permits which would allow them time to examine the feasibility of this direction, to plan the facility and design and construct a regional wastewater treatment plant.

Pursuant to IDAPA 58.01.02.400.03, DEQ may authorize compliance schedules for water quality–based effluent limits issued in a permit for the first time. Federal regulations at 40 CFR 122.47(b) allow for alternative schedules of compliance, in which an NPDES permittee may terminate the discharge of pollutants from the permitted source rather than continuing to operate and meet permit requirements. In this case, while IDEQ expects there will be a permitted discharge of treated sewage from a POTW to the Pend Oreille River for the foreseeable future, the existing WWTPs for the City of Sandpoint and the Kootenai-Ponderay Sewer District will be decommissioned and replaced with one new, regional WWTP. The regional plant would have the ability to meet a 25% mixing zone for phosphorus and therefore resolve mixing zone issues associated with the current treated effluent. Therefore, DEQ authorizes a compliance schedule that would allow Sandpoint WWTP to discharge phosphorus without improving mixing through outfall modification/relocation or improving treatment at their current treatment plant, until a regional wastewater treatment plant is built and operational per the Option 2 compliance schedule and interim and final effluent limits (Tables 4 and 5).

Interim Requirements for Regionalization (Option 2) Compliance Schedule

1. By three (3) years after the effective date of the final permit a facility plan shall be submitted to DEQ for review and approval. The facility plan shall include outlining estimated costs and schedules for completing a regional wastewater treatment plant and implementation of technologies to achieve final effluent limitations. This schedule must include a timeline for pilot testing.

2. By four (4) years after the effective date of the final permit, the permittee must provide EPA and DEQ with a progress report on funding for the new facility. Copy of notice of bond approval or notice of judicial confirmation is acceptable.

3. By five (5) years after the effective date of the final permit, the permittee must provide EPA and DEQ with written notice that design has been completed, approved by DEQ.

4. By six (6) years after the effective date of the final permit, the permittee must provide EPA and DEQ with a notice that bids for construction have been awarded to achieve final effluent limitations.

5. By seven (7) and eight (8) years after the effective date of the final permit, the permittee must provide EPA and DEQ with brief progress reports of construction as they relate to meeting the compliance schedule timeline.

6. By nine (9) years after the effective date of the final permit, the permittee must provide EPA and DEQ with written notice that construction has been substantively completed on the facilities to achieve final effluent limitations.

7. By ten (10) years after the effective date of the final permit, the permittee must provide EPA and DEQ with a written report providing details of a completed start up and optimization phase of the new treatment system and must achieve compliance with the final effluent limitations of Part I.B.

Table 4. Interim Limits and Mixing Zone Compliance for Option 2

Parameter	Units	Average Monthly Limit	Average Weekly Limit	Percent Mixing Zone
Phosphorus Load (June-September)	lb/day	61	79	47% of the 30Q10 flow (6,640 cfs) without outfall modification/relocation
Phosphorus Load (October-May)	lb/day	96	125	60% of the 30Q10 flow (8,260 cfs) without outfall modification/relocation

Table 5. Final Limits and Mixing Zone Compliance for Option 2				
Parameter	Units	Average Monthly Limit	Average Weekly Limit	Percent Mixing Zone
Phosphorus Load (June-September)	lb/day	33	42	25% of the 30Q10 flow (6,640 cfs)
Phosphorus Load (October-May)	lb/day	96	125	60% of the 30Q10 flow (8,260 cfs)

Mixing Zones

Pursuant to IDAPA 58.01.02.060, DEQ authorizes the mixing zones summarized in Table 6 for the current outfall location.

Table 6: Mixing Zones

Pollutant	Mixing Zone (% of critical flow volumes of the Pend Oreille River)
ammonia	
arsenic	
chlorine	
chromium III	
chromium IV	
copper	
cyanide	
lead	
mercury	
nitrate + nitrite	
zinc	
Phosphorus, June - September	47 (Final Limit per Option 1a)
Phosphorus, October – May	60 (Final Limit per Option 1a, 1b and 2)
Phosphorus, June-September	25 (Final Limit per Option 1b and 2)